

City of Albuquerque Night Sky Protection Task Force

Report to the Mayor and the City Council

March 1, 2001

For centuries, New Mexicans have looked to the night sky to mark the passage of the seasons, to navigate by and to light our way at night, and as both a source of spiritual rejuvenation and a stimulus to scientific inquiry. Even today, visitors come to marvel at its grandeur. Several important astronomical observatories have been established here. Our clear, dark skies are part of what makes New Mexico truly a Land of Enchantment.

But the beauty of our night sky is threatened by increasing light pollution in the form of skyglow from our growing cities and towns. Recently, the New Mexico Heritage Preservation Alliance underscored this by adding the night sky to its list of our State's endangered cultural resources. In addition, light trespass (defined as light originating on one property invading the property of another) and glare from poorly designed outdoor lighting have become growing problems in our urban areas, creating safety hazards and needlessly compounding the stresses of city life.

In an attempt to address these problems, in 1999 the State legislature enacted the State's first statewide lighting code, the New Mexico Night Sky Protection Act (NMSA 74-12-1).

It now devolves upon county and municipal governments, including Albuquerque's, to bring our local lighting ordinances into at least minimal conformity with the State statute. The Albuquerque City Council has created the Night Sky Protection Task Force to make recommendations to the Mayor and the Council as to how this might best be accomplished. These are our findings.

The Task Force believes that compliance with the spirit, as well as the letter, of the Night Sky Protection Act is in the best interests of the residents of Albuquerque, and all citizens of the State (many of whom are adversely affected by skyglow from Albuquerque, although they may live many miles away). However, we feel that the State statute provides only minimal protection. Therefore, it is our recommendation that the City adopt more comprehensive measures to limit light pollution, light trespass, glare, visual clutter and energy waste from overlighting, as many other cities around the U.S. have done.

We feel that such a policy is consistent with the City's established commitment to environmental protection and quality-of-life enhancement, as exemplified by efforts to reduce automobile exhaust emissions, curb water waste, regulate noise, limit urban sprawl, encourage recycling, preserve open space, and similar measures. A strong lighting code would further help to bolster Albuquerque's reputation as a progressive community dedicated to preserving safe, attractive, pedestrian-friendly urban spaces.

In large part, this can be brought about through amendments to the Comprehensive City Zoning Code and Uniform Administrative Code, specifically, by strengthening the sections relating to area lighting and illuminated signage. Briefly, these changes would:

- significantly reduce skyglow by requiring most lighting to be directed downward and shielded from the sky;
- curtail light trespass and reduce glare by eliminating industrial-type security floodlighting in residential areas;
- set reasonable limits on permissible light levels in commercial settings such as gas stations, convenience stores, fast-food restaurants, and car dealerships;
- place an 11:00 p.m. curfew on the lighting of sports facilities and outdoor entertainment venues, except

to conclude an event already in progress;

- eliminate energy-wasteful mercury vapor light fixtures (the sale or installation of which is already unlawful under the Night Sky Protection Act);
- allow up to seven years for existing lighting installations to be brought into compliance.

In general, low-wattage incandescent and fluorescent lighting, neon lighting, holiday lighting, and most types of internally-illuminated signs would not be affected by these amendments. Exceptions are also made for temporary emergency and construction lighting. The full text of the proposed amendments is appended to this report.

In addition, the Task Force makes the following recommendations:

- 1) That the City adopt a written policy requiring that all public streetlighting be fully shielded within seven years. The City and Public Service Company of New Mexico have already begun using only shielded fixtures when installing new or replacement streetlighting. We feel that a definite timetable for upgrading all existing streetlighting is desirable. An example of the pleasing appearance of this type of lighting may be seen along Central Avenue between University and Girard boulevards, where fully-shielded fixtures were recently installed.
- 2) That the streetlighting franchise agreement with PNM be re-negotiated to permit lower-wattage fixtures to be used whenever older, less efficient lighting is replaced by more efficient shielded lighting, thus providing energy-cost savings with no reduction in illumination levels on our streets.
- 3) The City Administration undertake efforts to coordinate lighting regulations among the

various local governments in the Albuquerque area, to promote uniformity.

- 4) That an ongoing effort be made by the Administration to educate Albuquerque residents about the value of dark skies and the impact of light pollution.
- 5) That the City promote good lighting practices by implementing a “Good Lighting Awards” program to recognize businesses and institutions that make an exceptional effort to light their premises in an aesthetically pleasing and environmentally conscientious manner.

We would also encourage City planners to set a good example by promoting state-of-the-art lighting design in the revitalization of the Downtown Core, and other designated Activity Centers and Corridors: not necessarily more light, but even, glare-free light, placed where it’s needed, not broadcast indiscriminately in the misguided belief that “more is better”. Studies have failed to demonstrate that excessive light levels reduce the incidence of either property crimes or personal assaults, although such lighting may create a false perception of safety.

In preparing this report, the Task Force drew on the expertise of its own members, as well as that of other knowledgeable individuals in diverse fields, including law enforcement officials, traffic engineers, electrical contractors, PNM representatives, streetlighting specialists, professional astronomers, and environmentalists. We also utilized a number of published sources, especially publications of the Illuminating Engineering Society of North America (IESNA) and the International Dark-Sky Association (IDA), both recognized authorities in the lighting field. These are included in the attached list of references.

One of our meetings included a two-hour nighttime tour of selected outdoor lighting installations around the City (including measuring illumination levels at some locations), in order that we might better visualize problem lighting and the design criteria under consideration to alleviate it.

We have also compared and evaluated several model outdoor lighting codes, as well as lighting

ordinances existing or proposed in other communities around the country.

Finally, we would like to thank the more than 350 residents of Albuquerque and surrounding areas who signed and presented to the Task Force a petition expressing their concerns about light pollution.

We believe we have proposed standards for outdoor lighting that are reasonable, attainable, and enforceable, and we urge that they be enacted.

The benefit will be a safer, more attractive city where citizens can enjoy nighttime activities in well-lighted public venues without sacrificing the beauty of our starry skies or being subject to the intrusion of unwanted light around our homes.

REFERENCES

Publications of the Illuminating Engineering Society of North America (IESNA):

IESNA Lighting Handbook, 9th Edition. New York, IESNA, 2000.

IESNA RP-33-99, "Lighting for Exterior Environments" (1999).

IESNA RP-20-98, "Lighting for Parking Facilities" (1998)

IESNA RP-8-00, "Roadway Lighting" (2000)

IESNA TM-10-00, "Addressing Obtrusive Light (Urban Sky Glow and Light Trespass) in Conjunction with Roadway Lighting" (2000)

IESNA TM-11-00, "Light Trespass: Research, Results and Recommendations" (2000)

IESNA CP-46, "A Statement on Astronomical Light Pollution and Light Trespass" (1985)

IESNA DG-9-97, "Lighting for Automated Teller Machines" (1997)

IESNA RP-6-88, "Sports Lighting" (1988)

IESNA LM-5-96, "Photometric Measurements of Area and Sports Lighting" (1996)

IESNA LM-50-99, "Photometric Measurement of Roadway Lighting Installations" (1999)

IESNA LM-64-91, "Photometric Measurements of Parking Areas" (1991)

IESNA DG-13-99, "Selection of Photocontrols for Outdoor Lighting Application" (1999)

IESNA LM-52-98, "Photometric Measurements of Roadway Sign Installations" (1998)

IESNA LM-69-95, "Interpretation of Roadway Luminaire Photometric Reports" (1995)

These and other IESNA publications may be ordered online at:

<http://www.iesna.org>

or by writing to:

IESNA Publications Department
120 Wall Street, 17th floor
New York, NY 10005

Publications of the International Dark-Sky Association (IDA):

Outdoor Lighting Code Handbook and USA Pattern Lighting Code, version 1.1 (Dec. 2000).

IDA Info. Sheet no. 9, "Glossary of Basic Terms and Definitions" (Jan. 1989).

IDA Info. Sheet no. 12, "Recommendations for Effective Outdoor Lighting" (Aug. 1996).

IDA Info. Sheet no. 24, "Security Lighting: Let's Have Real Security, Not Just Bad Lighting" (Aug. 1996).

IDA Info. Sheet no. 32, "Telling the Difference Between Different Light Sources" (April 1997).

IDA Info. Sheet no. 35, "Billboards" (May 1997).

IDA Info. Sheet no. 42, "Some Lighting Myths" (April 1998).

IDA Info. Sheet no. 51, "Lighting and Crime" (Dec. 1998).

IDA Info. Sheet no. 63, "U.S. Justice Dept. Study of Streetlighting and Crime" (June 1993).

IDA Info. Sheet no. 76, "Exterior Lighting: Glare and Light Trespass" (June 1996).

IDA Info. Sheet no. 104, "Rethinking the Conventional Wisdom of Security Lighting" (May 1996).

IDA Info. Sheet no. 122, "Examples of Good and Bad Lighting Fixtures" (May 1997).

IDA Info. Sheet no. 129, "Residential Street Lighting" (Dec. 1997).

IDA Info. Sheet no. 139, "Why Should a City Government be Concerned About Light Pollution?" (July 1998).

IDA Info. Sheet no. 143, "What is a True 'Full Cutoff' Lighting Fixture?" (Oct. 1998).

IDA Info. Sheet no. 148, "Estimating Average Illumination Levels" (Aug. 1999).

IDA Info. Sheet no. 151, "A Solution to Canopy Overlighting" (June 1999).

IDA Info. Sheet no. 156, "The Aging Eye: Some Basic Information" (Aug. 1999).

IDA Info. Sheet no. 159, "Shielding Floodlights" (Oct. 1999).

These and other IDA publications are available online at:
<http://www.darksky.org/ida>

or by writing to:

International Dark-Sky Association
3225 N. First Avenue
Tucson, Arizona 85719

Other Works:

FAA Advisory Circular AC 70-7460-1K, "Obstruction Marking and Lighting". Available online at: <http://www.faa.gov/ats/ata/ai/index.html>

The Outdoor Lighting Manual for Vermont Municipalities. Chittenden County Regional Planning Commission, Burlington, VT, 1996. Available online at: http://www.darksky.org/ida/ida_2/info135.html

Sherman, L.W., Gottfredson, D., et. al. Preventing Crime: What Works, What Doesn't, What's Promising: A Report to the U.S. Congress. Prepared for the National Institute of Justice. Department of Criminology and Criminal Justice, Univ. of Maryland, College Park, 1997.

Tien, James M., et. al. Street Lighting Projects: National Evaluation Program, Phase I Final Report. National Institute of Law Enforcement and Criminal Justice, U.S. Department of Justice, 1979.

A large number of links to local ordinances can be found at:
Light Pollution Awareness website:
<http://members.aol.com/ctstarwchr/>

and: LiteLynx website: <http://members.aol.com/ctstarwchr/LiteLynx.htm#results>